Human Factors

research and technology division

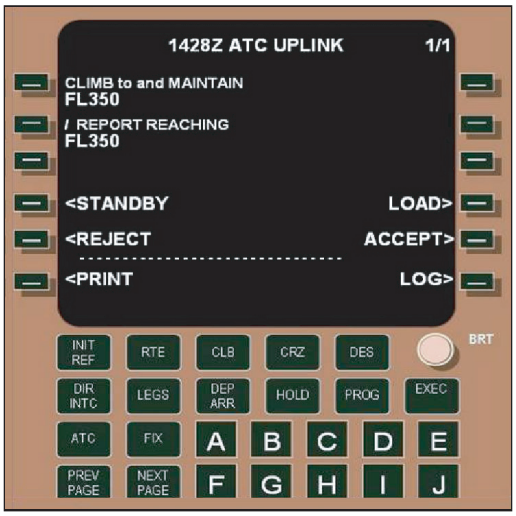
Human Factors Research for Controller-Pilot Data Link Communications

Objective

To investigate flight crew human factors research related to controller-pilot data link communications

Approach

Several research studies involving commercial flight crews have been conducted in full-mission simulation environments and in part-task simulation environments. These studies have investigated different data link implementations and procedures. The effects of the data link interface and procedures upon flight crew timing, communications, and errors have been explored within these research efforts.



Impact

Many simulation experiments have demonstrated the following:

- Flight crew acknowledgment times for data link messages are significantly longer than the acknowledgment times for voice messages. Those acknowledgment times are impacted by the crew procedures for enacting the data link clearance.

- The use of data link communications may alter the traditional roles of the pilot-flying and the pilot-not-flying.

- When mixing voice and data link media for clearance data, the mixture may lead to longer crew response times and more crew errors, particularly when time pressure is introduced.

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